

A Survey Paper Based IOT Based Covid19 Patient Health Monitoring System.

¹Dnyaneshwari D. Gadhwane

²Prof. Jayant Adhikari

Department of Computer Science and Engineering,
Tulsiram Gaikwad Patil College of Engineering,
RTMNU, Nagpur, Maharashtra

Abstract: Now a Days numerous person are mislaying their life owing to covid19 and shortest of medical attention to patient at correct stage. during this race human simply forget to concentrate on abundant essential half i.e. health. in this project we are implementing covid19 patient health monitoring system using IOT[Internet of things]. These systems works on the latest trending technology i.e. IoT (Internet of Things). Thus using IoT technology applications i.e. Health observance system. In these systems, usually persons have used pressure, body temperature device, pulse meter device with totally different micro-controllers to own readings from the sensing parts and received by the native server with that information are often shared with doc yet like the sufferer within the website. which may aware the user relating to its latest reading.

Keywords: Internet Of Things [IOT], health monitoring , sensor , server , cloud , website.

1. INTRODUCTION

The world population is increasing enormously. From 2 year COVID-19 created individual life terribly hectic. Some individuals take treatment from home. Thus government contains a no knowledge regarding COVID-19 patient. The cities accommodating additional population face astounding pressure of urban living. Even if the medical resources and facilities in cities area unit expanded daily, still to satisfy level isn't earned. The large pressure towards the management of health care in cities has triggered the advancement in technologies to come back out with the right solutions to the booming issues. With the increased rate of medically challenged individuals, remote aid has become a vicinity of our life. In recent years, we tend to observe the raised interest in wearable sensors and such devices are obtainable in marketplace for cheaper rate for private health care and activity awareness. Researchers thought of implementation of such advanced devices for the medical applications for knowledge recording, management and additionally to unceasingly monitor the patient's health. The web of Things offers a rising technology to realize consecutive level of health services. The progressive technology can have a transformative impact in each human's life and health observation the open challenges in implementing IoT in planet medical field. It assures for the reasonable, low-cost, reliable and handy devices to be carried or embedded with the patients, in order that to modify seamless networking between the patients, medical devices and physicians.

2. LITERATURE SURVEY

Some of the ideas utilized in square measure delineated here [1,2]:

2.1 IOT[Internet Of Things]

The Internet of Things (IoT) define as the network of things that are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with systems over the cloud and with other devices.

• Purpose of IOT

- To design wearable micro device that can send the Heartbeat and Oxygen level as well as body temperature on the cloud server
- The doctor by login to website and server can monitor the data on daily basis with graph
- Using IOT it is easy monitor the patient health.

2.2 Block Diagram

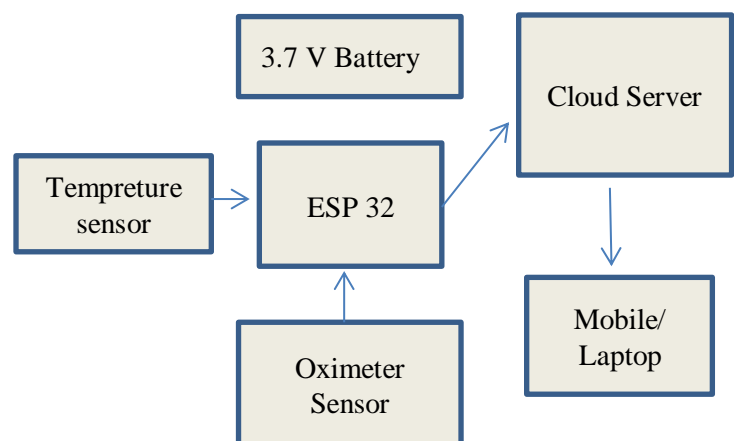


Figure 1: Block Diagram health monitoring system

A. ESP32 Controller

- ESP32 is highly-integrated with in-built antenna switches, RF, power amplifier, low-noise receive amplifier, filters, and power management modules
- ESP32 achieves ultra-low power consumption
- ESP32 can perform as a complete standalone system or as a slave device to a host MCU, reducing communication stack overhead on the main application processor. ESP32 can interface with other systems to provide Wi-Fi and Bluetooth functionality through its SPI / SDIO or I2C / UART interfaces.



Figure 1: ESP32 Controller

B. Ds1820 Temperature

- The DS1820 Digital Thermometer provides 9-bit temperature readings which indicate the temperature of the device
- The DS1820 can measure temperature over the range of -55°C to $+125^{\circ}\text{C}$
- Compatible with NodeMCU interfacing



Figure 3: Ds1820 Temperature

C. OLED

- Work perfectly well without the need of back light.
- 128*64 high resolution, ultra wide viewing angle
- Super low power consumption—only 0.08W when the whole screen lights up and 0.06W when displaying characters
- Fully compatible with multiple controlling chips including Arduino and more.
- Support a wide range of voltage input
- Input Voltage: 3.3V ~ 6V
- Compatible I/O Level: 3.3V, 5V
- Only Need 2 I/O Port to Control

D. Pulse Oximeter MAX30100

- It is an integrated pulse oximetry and heart rate monitor sensor solution.
- Integrated LEDs, Photo Sensor, and High-Performance Analog Front -End
- Complete Pulse Oximeter and Heart-Rate Sensor Solution Simplifies Design.
- Measures absorbance of pulsing blood
- I2C interface for controller.

E. Server

- Cloud server use to store data of Pulse, Oxygen and Temperature
- Php and Html programming use to see the data on website
- The server is online so we can see the data anywhere in the world from internet

F. Architecture

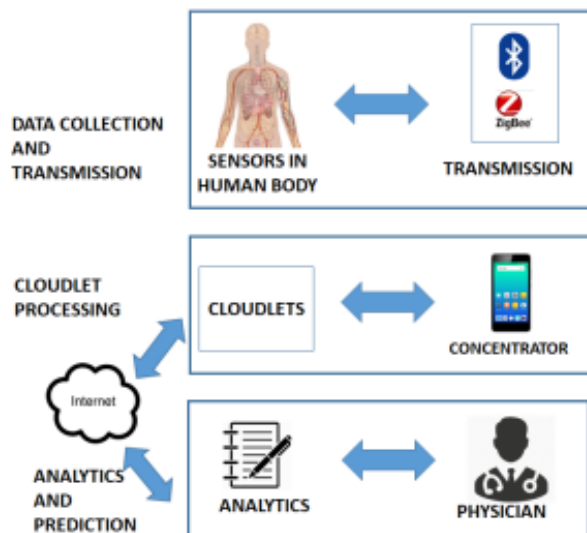


Figure 6: Basic System Architecture

- the health monitoring system, the existing Wireless Sensor Networks(WSN) must be customized so as to remodify the sensing nodes based on relative distance between
- sensors and health center, also to acquire more physical information for long time by avoiding redundant tasks.

G. Sensor Monitor

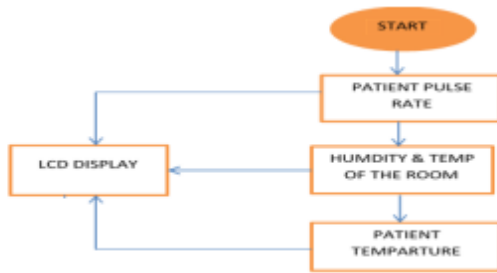


Fig. 3: Sensors Monitored

- The digital pulses are given to a microcontroller for calculating the heart beat rate, given by the formula: $BPM \text{ (Beats per minute)} = 60 * f$, where f is the pulse frequency. A humidity sensor (or hygrometer) senses, measures and reports both moisture and air temperature. Humidity sensors work by detecting changes that alter electrical currents or temperature in the air. The relative humidity is calculated as given below: $\text{Voltage} = (\text{ADC Value}/1023.0) * 5.0$; $\text{Percent relative humidity} = (\text{Voltage} - 0.958) / 0.0307$; IoT Server. At whatever point the patient goes to the healing center premises, sensors sense the physiological signs and these signs are changed over to electrical signs.
- Then simple electrical flag is changed over to advanced flag (computerized information) which is

put away in RFID. The put way computerized information is transmitted through Zigbee Protocol to the neighborhood server. Zigbee is appropriate convention for this framework. It comprises of greatest number of cell hubs. It is more favored for

- gadgets which are littler in measure and expend less vitality. The body temperature, humidity and pulse rate sensors are monitored and initially displayed on LCD as explained. The values from the sensors especially the body temperature sensor and the pulse rate sensor is stored in the database.
- If the pulse rate and body temperature are (Low & Low) OR (Low & High) OR (High & Low) OR (High & High) Then the patient has to immediately go for a detailed Health Checkup.
- If the pulse rate and body temperature are (Low & normal) OR (High & Normal), then the patient is considered to be unwell.
- If the pulse rate and body temperature are (Normal & Low) then the patient is considered to be in a hypothermia state. If the pulse rate and body temperature are (Normal & High) then the patient is considered to be having fever. If the pulse rate and body temperature are (Normal & Normal) then the patient is considered to be healthy.

CONCLUSION

Using IOT technology for communicating patient health via cloud to the doctor it is very much essential technique in this paper. It has been surveyed about the existing works on the IOT techniques. design wearable micro device that can send the Heartbeat and Oxygen level as well as body temperature on the cloud server. The doctor by login to website and server can monitor the data on daily basis with graph. To improving this problem modified IOT based system is proposed. This modification may improve the monitoring and also increase performance..

REFERENCES

- [1] [1] Heart Attack Detection and Heart Rate Monitoring Using IoT, International Journal of Innovations & Advancement in Computer Science IJIACS ISSN 2347 – 8616 Volume 7, Issue 4 April 2018
- [2] [2] IoT based Heart Attack Detection, Heart Rate and Temperature Monitor, International Journal of Computer Applications (0975 – 8887) Volume 170 – No.5, July 2017
- [3] [3] Cloud Based Smart Health Care Monitoring and Alert System , International Journal Of Advanced Research in Engineering & Management (IJAREM) ISSN: 2456-2033 || PP. 01-13
- [4] [4] IOT Based Remote Patient Health Monitoring System, 2019 International Conference on Machine Learning, Big Data, Cloud and Parallel Computing (Com-IT-Con), India, 14th -16th Feb 2019
- [5] [5] Implementation Of Real Time Health Monitoring, International Journal for Research in Applied Science & Engineering Technology (IJRASET) Volume 3 Issue IV, April 2015